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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,789	02/20/2004	Leon Zheng	174/294	7188

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EXAMINER	
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ART UNIT	PAPER NUMBER
2193	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/783,789	ZHENG ET AL.	
	Examiner	Art Unit	
	Chat C. Do	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02/20/04; 07/08/04; 10/18/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *11-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/18/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to Response to Election/Restriction filed 06/01/2007.

2. Claims 1-24 are pending in this application. Claims 1, 8, and 11 are independent claims. In Response to Election/Restriction, Group I claims 1-10 are elected and claims 11-24 are withdrawn from consideration without transverse. This Office action is made non-final.

Election/Restrictions

3. Applicant's election without traverse of Group I claims 1-10 in the reply filed on 06/01/2007 is acknowledged.

4. Claims 11-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, there is being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 06/01/2007.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because the abstract is written more than 150 words in length. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 1, the limitation "wherein the feedback output is set to zero" is unclear whether the feedback output is always set to zero or only initially set to zero in the beginning. For examination purposes, the examiner considers the step of setting feedback output to zero at the beginning for initialization process. Claim 8 has the same rejection.

Thus, claim 2-7 and 9-10 are also rejected for being depending on the rejected base claims 1 and 8 respectively.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 1-10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-10 cite a method and circuit for performing multiply-accumulating operation in accordance with a mathematical algorithm. In order for claims to be statutory, claims must either include a practical/physical application or a concrete, useful, and tangible result. However, claims 1-10 merely disclose steps/components for performing multiply-accumulating operation without further disclosing a practical/physical application or a useful and tangible result since the claims appear to preempt every substantial practical application of the idea embodied by the claim and there is no cited limitation in the claims that breathes sufficient life and meaning into the preamble so as to limit it to a particular practical application rather than being so broad and sweeping as to cover every substantial practical application of the idea embodied therein. Therefore, claims 1-10 are directed to non-statutory subject matter.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Owen et al. (U.S. 4,876,660).

Re claim 1, Owen et al. disclose in Figure 6A a method (e.g. abstract and Figure 6A) comprising: routing a first pair of input signals (e.g. XA and YA) and a second pair of input signals (e.g. XB and YB) to circuitry that is concentrated in a particular area of a programmable logic resource (e.g. programmable logic 10 in Figure 6A); applying a multiply operation to the second pair of input signals using the circuitry (e.g. first stage with XB*YB as output of multiplier 30); applying a feedback output to the circuitry (e.g. through mux 56), wherein the feedback output is set to zero (e.g. as 0 feeding-in); concatenating each signal of the first pair of input signals and the feedback output (e.g. second stage with XA and YA are concatenated to form 32-bit into mux 32); and applying an accumulate operation on a result of the multiply operation with a result of the concatenating (e.g. last stage of adder 34 in Figure 6A).

Re claim 2, Owen et al. further disclose in Figure 6A setting the first pair of input signals to zero (e.g. by inserting 0 input into mux 32).

Re claim 3, Owen et al. further disclose in Figure 6A applying the accumulate operation comprises one of: adding the result of the multiply operation to the result of the concatenating; and subtracting the result of the multiply operation from the result of the concatenating (e.g. by adder 34 with right side is the result concatenated and the left side is the feedback as the result of multiplication).

Re claim 4, Owen et al. further disclose in Figure 6A setting the first pair of input signals to values that when concatenated in a predetermined order, comprises a first predetermined number of most significant bits of an initialization value (e.g. 32-bits); and

setting the second pair of input signals to values such that the result of the multiply operation comprises a second predetermined number of least significant bits of the initialization value (e.g. both of which can be set to a predetermined number which is zero as feed into mux 32).

Re claim 5, Owen et al. further disclose in Figure 6A the first predetermined number and the second predetermined number comprise the initialization value (e.g. initial zero feed into mux 32).

Re claim 6, Owen et al. further disclose in Figure 6A the feedback output has a number of bits equal to the second predetermined number (e.g. 32-bits).

Re claim 7, Owen et al. further disclose in Figure 6A applying the accumulate operation comprises adding the result of the multiply operation to the result of the concatenating (e.g. the first stage is concatenated of XA and YA; and the second stage is multiplication of XB*YB as reversed).

Re claim 8, Owen et al. disclose in Figure 6A a method (e.g. abstract and Figure 6A) comprising: routing a pair of input signals (e.g. X and Y in registers 14 and 16) to circuitry that is concentrated in a particular area of a programmable logic resource (e.g. programmable logic 10 in Figure 6A); applying a multiply operation to the pair of input signals using the circuitry (e.g. by multiplier 30); clearing a register in the circuitry based on at least one dedicated configuration bit that is set (e.g. setting 0 input into muxes 32 and 56); applying a feedback output to the circuitry (e.g. through mux 56), wherein the feedback output is set to zero (e.g. selecting 0 as input to mux 56); concatenating contents

of the register with the feedback output (e.g. registers 14 and 16 are concatenated to form 32-bit into mux 32); and applying an accumulate operation on a result of the multiply operation with a result of the concatenating (e.g. last stage of adder 34 in Figure 6A).

Re claim 9, Owen et al. further disclose in Figure 6A the dedicated configuration bit is set by user input (e.g. all the control signals in Figure 6A for controlling the muxes).

Re claim 10, it has similar limitations cited in claim 3. Thus, claim 10 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Patent No. 4,996,661 to Cox et al. disclose a single chip complex floating point numeric processor.

b. U.S. Patent No. 5,311,459 to D'Luna et al. disclose a selectively configurable integrated circuit device for performing multiple digital signal processing functions.

c. U.S. Patent Publication No. 2006/0075012 to Minz et al. disclose an efficient implementation of DSP functions in a field programmable gate array.

d. U.S. Patent No. 6,781,408 to Langhammer discloses a programmable logic device with routing channels.

e. U.S. Patent No. 7,142,011 to Langhammer discloses a programmable logic device with routing channels.

f. U.S. Patent No. 6,711,301 to Tran et al. disclose a block-oriented pixel filter.

g. U.S. Patent No. 7,107,302 to Fridman et al. disclose an FIR filter algorithm for implementation on digital signal processor having dual execution units.

h. U.S. Patent No. 6,665,695 to Brokish et al. disclose a delayed adaptive least-mean-square digital filter.

i. U.S. Patent No. 6,665,696 to Brokish discloses a delayed adaptive least-mean-square digital filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
Art Unit 2193

August 8, 2007